



SPECIFICATION

Inventor:: Ann Marie Janice Bryan
Application number:: 10/796,687
Subject Matter:: Utility
Filing Date:: March 7, 2004
Application Type:: (Regular) Nonprovisional
Title:: Wearable Speakers Vest/Jacket with removable
sleeves that come with sport wristwatch &
hood speaker headphone.

Speaker is also known as vibrator, transducer and
subwoofer (To be wireless, battery operated, solar
power dependent or Wi-Fi)

This application is a [continuation/continuation-in-
part/divisional] of Serial No. 60/453,137, filed on
March 7, 2003, entitled Wearable Speaker Vest Vibrator
(to be wireless).

BACKGROUND OF THE INVENTION

THE AURA INTERACTOR - VIRTUAL REALITY GAME WEAR

Aura Sound, Inc.

The Aura Interactor - Virtuality Game Wear is a hard
black plastic construction backpack-like instrument.
It is called a vest, and it doesn't appears like one.
It was originally developed for use on the Sega
Genesis and Super Nintendo. This device comes with an
AC power adaptor, a control unit, cables, and the
backpack that gives you the feedback from your games.
Basically, Aura Interactor - Virtual Reality Game Wear
does not make this unit anymore. The company pulled

the products from the market in 1995 and ceased production of these items. The problem with these units was that you were strapped to them, a quick and easy task, but somehow the act of strapping a piece of hardware on to your body was itself an act of commitment. In other word, you couldn't just walk away from your computer to walk your dog or go jogging until you either unplugged the device or took the unit off.

In reference to an article read about this unit, *Aura Interactor Review Date: 08 January, 2002 Author: Jon Thysell, Guest Writer*, he wrote:

*AURA INTERACTOR VIRTUAL REALITY GAME WEAR
PAST ITS PRIME?*

"I'll be brutally honest: it was cool for a little while. But after wearing it for about an hour listening to some music, it made me feel sick to my stomach. All that vibrating around can get annoying; you can't concentrate at all while wearing it. It isn't so bad in slower paced games like the various Rainbow Six® games, but playing with it in something that requires fast reflexes and concentration like Counter-Strike will just drive you insane. If you think back to 1994, back when the hottest gaming systems were the Sega® Genesis™ and Super Nintendo®, it would be just fine. But with all of the more recent high intensity games, the Aura Interactor falls short. It should have had a headphone jack though, and a way to mute the garbled sounds coming from the backpack."

Since Aura ceased this product because their unit did not do well in the market due to some flaws, sound defects, and being confined to wires as well as to the AC outlet. Apparently, Aura did not catch on soon enough to improve their unit. Based on research, most of their consumers were Deaf and Hard of Hearing. Aura had no interest in advancing their technology invention to reproduce them as a wireless product.

INTRODUCTION TO MY INVENTION

My device was discovered by accident during a movie production. It was created as a piece of prop in the film to allow a deaf actress to feel her musician boyfriend's music through a "homemade" wearable speakers vest model made out of car speakers. The only disadvantage was the wires, which was in the way due to being attached to the speakers sewn onto the vest and the car speakers were heavy. However, the sensational feeling of the bass was effective.

As a deaf person, I enjoy music very much, so do thousand and thousands of Deaf and Hard of Hearing people from all walks of lives. I owned a mini-iPod, and I did not get the same privilege that most hearing people did listening and appreciating music while on the road. So why couldn't we have some sort of "body-pod" where we could appreciate music by feeling the music while on the go? Remember those days when street people would carry a "boom box" on their shoulder with the music blasting? The boom boxes are out! Now it's

time for a new "ready-to-wear boom devices."

The boom box era has since long passed. We still have yet to find a product which would provide us with feeling sensational and an equal access and appreciation of music.

Nonetheless, I became drawn to the idea of approaching a new way to enjoy entertainment in a fashion way. The goal of my product design is to produce wearable speaker vests with removable sleeves that are to be combined with wireless electronic components and other elements with multifunction mechanisms. I saw an opportunity to market this innovative product simultaneously during my movie release in the near future.

Since the Aura creation of the Virtual Reality Game Wear backpack ten years ago, technology has dramatically advanced. I plan to introduce a fun, fashionable and entertaining transducer speakers vest/jacket for everyone to wear and to enjoy the comfort and convenience of going places wirelessly.

SUMMARY OF THE INVENTION

The Wearable Speakers Vest/Jacket is an innovative "ready-to-wear" design of the present invention that is an art of fashion, entertainment, sports, and urban trend. The device provides an alternative and

convenient way of life to appreciate and feel the bass without the confinement of wires or plugs. The device is to be used with a connective compatible outlet for the iPod, CD Player, PDAs, computer laptops, DVD Players, MP3 Player, and other kind of gadgets presently available in the market.

- The vest/jacket will have several holding places fastened onto the fabric. The cloth will hold multiple flat panel speakers on both front and back sides of the vest. The speakers will be connected to speaker wires, thereby linking to electronic-magnetized cooper wires which enable the speakers to work wirelessly.
- The vest/jacket will also contain sports wristwatches and bands through Nylon straps, Velcro closure, or be sewn in around the side of the sleeve armholes.

They are ideal as sportswear for cyclists, joggers, skateboarders, rollerbladers and so forth.

- They will also come with reflectors, either on the side of the shoulder arms sleeves or on the back of the vest. The reflectors can also be used as a reception for transmitters/receivers.

- ❑ The device will also come with small speaker loop to be worn around the neck with a headphone
- ❑ either built inside the hood or to be worn externally.
- ❑ There will be multiple pockets and pouches to store gadgets, keys, iPods, CD/DVD Players, small computer laptops, games, digital cameras, wallets, PDAs, removable speakers and so forth.
- ❑ All the speakers vest/jacket will have transmitters and receivers built internally or externally of the vest for the receptive to work with a wireless remote. They are essential components used to operate its wireless functionality with the headphone, speakers, and blinking reflectors. Again, the transmitters and receivers can be used as an idea to work with the reflectors.
- ❑ There will be patches under the elbow-level of the sleeves for blinking, reflections and protection from sports activity.
- ❑ Most of all, the greatest benefit to this unit is that they get to be charged overnight—like you would do to a massager chair with the option of using a remote control or a turn on button

inserted in the vest. The same rule applies for cell phones, pagers, PDAs, computer laptops, digital cameras, and so forth. The speakers can be added anywhere, in the front or the back.

The idea is to seek a manufacturer or prototype company that will make them in a functional form:

- Wireless (battery operated)
- (Wi-Fi) based radio wave
- Solar sensor

The wearable speakers vest/jacket will come in all colors, style, designs, textures and comfort.

WHO WILL BENEFIT:

- | | |
|---------------------|------------------|
| • Deaf/HOH people | • Street people |
| • Urban groups | • Computer geeks |
| • Kids/Young people | • Rap artists |
| • African Americans | • Singers |
| • Latinos | • Musicians |
| • Artists | • Athletes |
| • Filmmakers | • Outdoor people |

In summary, the idea is to allow anyone the free will convenience to travel anywhere with the speakers vest/jacket without being connected or restricted to a plug.

We plan to also develop a mechanism that will allow Deaf people to enjoy this unit when they go to the movies. For instance, when they go to the movies, we want to design a prototype control dial button so they can set up the communicator to (M) for movie to activate the transducer to transmit and receive vibration without actually emitting audio noise or sound. Wi-Fi radio wave and Solar power dependent is an introduction to that idea.

If they want audio/music, they set up the control dial button to (A) for audio/music; they have the option of using a Cd Player, iPod, MP3 Player.

The goal is to make the speakers as flat as possible, with high-powered bass and lightweight as possible. I can see this device improve its elements over times as technology continues to advance.

WIRELESS TRANSMITTER/RECEIVER SPEAKER VEST

(High-fidelity Subwoofer also known as transducers/vibrator)

The accompanying drawings further describe the invention.

1. Wearable speakers vest (Wireless)

AN INTRODUCTION TO THE INITATE DESIGN

See drawings sheets 1-6), included the back of the vest

2. Wearable speakers vest (Wireless)
"THE POWER VEST" See drawing sheets 7
3. Wearable speaker vest jacket with removable sleeve &
wrist watch (Wireless) See drawings sheets 8-10
4. Wearable speaker vest or jacket with headphones also
known as "HOODPHONE OR HOODIES" (Wireless) All in one
design (See drawing sheets 11-16)
5. Wearable speakers vest/jacket (Wireless)
(See drawing sheets 17-18) are shown in varieties of
designs.

SPECIALIST TEAM

Design Engineering, Industrial Engineering and Audio
Engineering.

The inventor has two brothers who are field and
electronic Engineers. Consultation received from
them will greatly benefit us in developing
several working prototype models, especially flat
panel speakers that are light as possible.

TECHNICAL (RS-426 and DIN 120 ARE COMMONLY USED)
(Expected to work after evaluation and testing:

- o Thiele-Small Lumped Parameter Model
- o Thermal Power Handling
- o Frequency Response
- o Displacement Power Handling - to check for
distortion.

- o Waterfall Response
- o Filtering
- o Integration
- o Impedance

1. Design the most flattest, most smallest, round or square transducer (at least 1.5 to 2 inches and weighing less than 2 lbs.) with high ends, powers and sensation feeling that consumers can appreciate (wireless) and wear the vest on the go; anytime, anywhere and any place without restrictions. The speaker transducer can be placed on the back of the vest with two main speakers on top left and right and with two additional speakers on the front of the vest above the chest line or below the torso line where the pouch pockets will be. We have options on where to place the transducers. However, they need to be as light as possible and as small as possible.

NOTE: *Redrock Acoustics is our main interest and reliable speaker-designing source which we'd like to collaborate with for the design of the vests/jackets. Their 20 years of experiences of transducer design from Ribbon Tweets to high power subwoofers aim to meet the high demand needs of their clients make them an ideal collaborator/partner.*

The best acoustical products begins with the root understanding of how transducers function and end with strict quality assurance. Redrock Acoustics offers some of the most sophisticated test

equipment available on the market, and in cases where commercial gear was not available, they designed their own. They are based in Tempe, Arizona. They have the ability to perform qualitative tests that define each aspect of a speaker's performance.

We are convinced that we will find the smallest, powerful and round or square lightweight speakers we need for this speaker vest/jacket design.

2. Design lightweight ski typed vests to wear for hours as well as comfort fitting. (We will experiment and test a variety of vests from soft foam core, sturdy nylon, Neoprene, or polyester fabrics) to see which emits more bass power and sensation from the transducer. Then we will insert wires inside of the vest and test the power of the speakers. (See drawing sheet 2)
3. To design a non-auditory transducer instrument (the kinds that could be use with gaming consoles such as PlayStation2 or Xbox – without disturbing anyone else. (This idea introduction approach is ideal for Deaf and Hard of Hearing people)
- 3.A To design a full-throttle sound transducer instrument without disturbing others. (For non-Deaf people)
4. Design a battery operate charger to charge the vest power.

5 Built-in amplified transmitter/receiver

6. Design a wireless transmitting/receiving or Wi-Fi radio wave coordination, battery operated power and Solar Sensor functionality. (We will test which benefits better wirelessly, and or whether transducer speaker will work well with Wi-Fi ready. Although, interference may be a problem for Wi-Fi system causing delays in communications in several Wi-fi machines since its fairly new. It is a new form of introduction to try this method, and we do not know if the strength of the Wi-Fi communication can carry the power of the speakers.)

7. Design a remote control for the vest/jacket with multifunction for multimedia functions for a wireless battery operated:

- CD Player
- Walkman
- Fm/AM Radio
- DVD Player
- Home Entertainment Unit
- Games
- Television
- Movie theaters
- Laptop
- Computer
- Headphone

8. Built-in control dials (i.e., switch off/on) like turning off a cell phone or pager inside the transmitter and receiver buttons on the vest. See drawing sheets 1 and 2. The idea is to get the remote control and the on/off control dials on the vest to communicate with each other.

The biggest challenge here "how do we get the speaker transducer vest (sound or no sound) to work with the multimedia entertainment technology without wire connectivity?"

9. Design a DVD/CD pouch pocket on the vest/jacket for "easy carry around" benefit.
10. Design connections (capability plug): Cables insert to TVs, VCRs, CD and audio systems through the supplied connecting cord and plug adapter to preserve or charge battery power.

We are prepared to design all the connections/plugs for multimedia entertainment equipment. For example: the power of the transducer vest is charged, and you're ready to go. You are ready to plug a cable of an iPod or a CD Player into the vest plug socket. You can put them in one of the pouch pockets. You're set to go! There, you have your bass and your music rocking your body as you go in for coffee or take your dog out for a walk. You could also plug in your headphone to keep sound from coming out.

ADDITIONAL FEATURES

11. Volume controls (for audio/sound options).
12. Added voice coil but must be low frequency to induce high fidelity bass.

- 13. Built in radio (FM/AM)
- 14. Design removable vest sleeves and design sport Wristwatches on one of the sleeves.
- 15. Built-in wireless superbass headphone to be sewn inside the hood or out.

HEADPHONE TECHNICALS (EXPECATIONS-TRIAL/TRIBULATIONS)
(See drawing sheets 11, 12, 13, 14, 15, & 16) Drawing sheets 13 & 14 is much more clearer.

- 16. Design a built-in HOODPHONE (speaker headphone) ideal for skiers, joggers, cyclists, and outdoor athletes.
- 16.A. Design a lightweight waterproof foldable headphone inside the hood.
- 16.B. Create an open-air or compressed design: lets you continue to hear ambient sound.
- 16.C. 30mm diameter drive units: These internal drivers are larger than on many other portable headphones, resulting in deeper bass, lower distortion and wider dynamic range. Frequency response extends down to a low 18Hz.
- 16.D. 90° transmission angle (maximum): for uninterrupted listening as you move around the room.

- 16.E. PET diaphragms: ensure high rigidity for minimum distortion; low mass for extended high-frequency response out to 22,000Hz.
- 16.F. Wide headband: with a separate self-adjusting band conforms precisely to the curve of your head; stays comfortable, even after listening for hours on end.
- 16.G. Mute function: to avoid noise through the headphones; cuts out the sound when no audio signal is available.
- 16.H. Automatic power switch: for both the headphones and transmitter conserves battery life; when the transmitter senses an input signal, it turns on; the headphones turn on when you place them on your head.
- 16.I. Single volume control: in one earpiece conveniently adjusts the volume for both channels.
- 16.J. Built-in antenna for better reception (wireless-Wi-Fi ready)
- 16.k. Build an infrared technology less prone to interference.

Unlike most other cordless headphones, which typically use radio frequency signals, these headphones use infrared technology. This makes them less prone to interference from other household items that use radio frequency technology like cordless phones. Plus, multiple LEDs provide an extended 24' coverage range (line of sight).

HEADPHONES

- Type - Open-air or compressed, Dynamic, Cordless
- Drive Unit - 20 - 40mm
- Frequency Response - 18 - 22,000Hz
- Power Requirements - DC 1.5V, 1 NiCad Rechargeable Battery (supplied) or 1 AA battery (optional)
- Battery Life - Approx. 23 hours with supplied NiCad battery; approx. 45hours with optional alkaline battery
- Recharging Time - Approx. 24 hours
- Supplied Accessories - Rechargeable NiCad Battery NC-AA-HJ
- AC adapter
- UniMatch plug adapter
- Connecting cord

Weight - Headphones: 6.3 oz. (180 g), (including battery)
Transmitter: 4.4 oz. (125g)

HEADPHONE TRANSMITTER

- Power Requirements -AC 120V, 60Hz when used with supplied

AC power adaptor which connects to the DC 9V jack

- Audio Input - Stereo L/R phono plugs; supplied 3-foot connecting cord goes from stereo mini plug or phone plug to L/R phono plugs
- Expect effective Range - 24 feet 10 feet
- Power On/Off - Automatic On/Off switch

NOTE: We will design and test the strength of the bass power far greater than what the normal frequency ears listens to music or sound since most Deaf people like more bass coming from the headphone. It will be designed for Deaf people only. The purpose is to give them enhanced vibrating bass experience which provides extra power without extra volume needed.

Current designs (photo samples) are still in early stage of development. It was use as props for a movie production. Again, we saw a greater marketability opportunity for the speaker vest with other populations and target groups.

Therefore, we believe, that as the product and the technology develops with the participation of engineers in the expertise in electronic and magnetic, it is our intention to seek a manufacturer that can make them as flat as possible to wear wirelessly.

In conclusion, the above description and examples should not be construed as limitations on the scope of the invention. Many other variations are possible. Accordingly, the scope of the invention is determined by the claims and their legal equivalents.

Drawing designs of speaker vest/jacket attached.

Inventor::

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